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DEP citizens' bulletin

noise

It seems to be an attitude in the western world to equate noise with power, but recent research has proven that the more noise a person is exposed to, the less power his ears have to hear.

Until recently in this country, noise was treated as a public nuisance, and enforcement of the few public nuisance laws that existed was difficult. Like other annoyances that have only subtle adverse effects, noise was often overlooked as a form of pollution. But it is pollution, and research has proven that it is dangerous to the health and welfare of human beings.

As motorized vehicles, tools and electrical household appliances become more common in our daily lives, noise levels increase. It has reached the point now where, according to EPA, an average community in the United States has noise levels in excess of 70 decibels - the unit of measurement for the loudness, intensity, or pressure of a sound - which scientists usually designate as the minimum threshold for potential hearing loss. Noise in excess of 70 decibels can cause mental and physical damage.

Noise causes its major adverse physical effect on the human body through the hairs inside the ear that conduct sound. If a noise is loud enough, the ear will suffer temporary inability to hear because the hair cells are fatigued. If the cells are given a rest, they can recover. But if the noise is prolonged or repeats itself too soon, the cells will not have a chance to recover. The hairs are permanently damaged, which means that the ear will be insensitive to certain frequencies of sound. The first sensors destroyed are the ones that respond to high frequency sounds. Neither hearing aids nor surgical operation can bring back the ability for that ear to hear those frequencies.

Usually the person subject to this damage from noise exposure does not realize what is happening because the hairs that are first destroyed are not those that pick up the frequency that has caused the damage, but those sensitive to noise that is one-half to one octave above the offending frequencies. By the time an individual becomes aware of what has happened, the damage has been done.

Noise, like other forms of pollution, is obviously a health hazard. According to the World Health Organization, damages from industrial noise alone costs the U.S. $4 billion a year. This damage can be psychological as well as physical.

Noise can be defined as unwanted sound, which the body interprets as stress--resulting in anxiety related disorders and psychotic episodes. An estimate made by the federal government states that four to five million Americans have suffered permanent hearing damage as a result of noise pollution, and 40 million more are in danger of having some hearing impairment. The most common permanent damage is caused through stress related ailments. Noise doesn't directly cause these ailments, such as headaches, heartburn, indigestion, and hypertension; but it can be a major contributor to their existence, and can aggravate an existing condition.

Noise affects the functions of the involuntary or automatic nervous system, causing physical changes. Sudden, or high frequency noise may cause blood vessels in the brain to dilate, blood vessels in other parts of the body to constrict, blood pressure to rise, heart rhythm to change, pupils of the eyes to dilate, blood cholesterol level to rise, endocrine glands to pour additional hormones into the blood, and the stomach to change its rate of acid secretion.

When these reactions are temporary, the damage is not permanent. When they become chronic, the situation becomes serious.

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To show how dramatically noise can affect the human body, note that noise in the infrasonic range--frequencies below the range of hearing--are being tested as exotic weapons in France because they can alter the natural rhythm of brain waves. Yet such familiar objects as ventilating fans, airplanes and rockets surround us with infrasonic noise daily.

Studies have shown the dramatic impact of noise from our daily lives. Results of four such studies reveal: that persons living near Heathrow Airport in London have a higher rate of admission to mental institutions than persons living in quieter environments (further studies of the results are now being undertaken); that noise is a major cause of sleep loss, which may result in a host of psychological reactions; that the hearing ability of elderly members of a primitive tribe in Sudan who live in particularly quiet surroundings is as acute as that of 25 year olds living in industrial areas of the U.S.; that, according to the Colorado Department of Health, 30 percent of all hearing loss in school-age children is "probably noise induced."

PROTECTION AGAINST NOISE

Some noise caused by industrial plants, highway traffic and lawn mowers can be reduced to acceptable levels by proper placement of trees, shrubs and ground cover. These also produce sounds of their own which mask the offending sounds. But this is only a highly localized and temporary answer, and one which will not work for everyone.

There now exist designs for new, quieter products such as quiet vacuum cleaners and quieter power mowers. These have not yet been put on the market and probably will not be until there is public pressure for them. Such pressure has not been great. In fact, one of the first quiet products put on the market was returned to the stores by many customers because they thought it was not working as efficiently as their former, noisier models.

Since most people are "used to" noise from machinery and household appliances and do not recognize the harmful effects noise from these products can cause, manufacturers have felt no need to redesign their wares. Only public pressure, or governmental or legal intervention, will cause quieter products to appear on the market. Yet designing less noisy products initially is the most sensible and cost-effective way to reduce noise. After-the-fact, post-product noise control is more expensive and less effective. It is much cheaper to reduce noise levels at the early stages of design than later when the machine is operating.

FEDERAL NOISE CONTROL

In this country, interest in protecting the public has grown with understanding of the harm which can result from noise. This interest first manifested itself on the federal level in 1936 when Franklin D. Roosevelt signed a bill which included safety provisions for laborers from levels of noise exposure. In 1939 the Walsh-Healy Act regulated noise levels in industrial establishments under contract to the federal government. A noise control amendment was adopted in 1969 that established the maximum amount of time employees may be exposed to continuous noises before it is necessary to provide protection for their hearing.

Responsibility for administering the Walsh-Healy Act rested with the U.S. Department of Labor through the Occupational Safety and Health Act (OSHA). In 1970, OSHA extended the standards of the act to cover all places of work. In Connecticut, enforcement of OSHA is administered by the State Labor Department.

Noise was not, however, given the dubious distinction of recognition as a "pollutant" until 1970 when, through Title IV of the Clean Air Act of 1970, the Office of Noise Abatement and Control (ONAC) was established as part of EPA. ONAC's first responsibility was to prepare a comprehensive report on noise for the President and Congress, which was submitted in January 1972. Although the powers and responsibilities of ONAC were expanded by legislation in 1971, its staff and budget were severely restricted, and ONAC studies remained just that - studies.

The major step forward on the federal level came in the Noise Pollution Control Act of 1972. This act gave the federal government the authority to establish emission standards for all noise sources determined by EPA to be a threat to the public health and welfare.

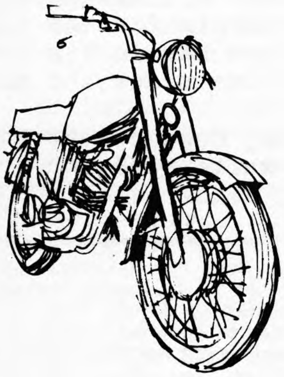
The act states that control of major noise sources requires national uniformity of treatment, which in turn requires federal action. It specifically prohibits states from setting noise emission levels different from those promulgated by EPA, but allows the states to regulate use, operation, or movement of products producing certain levels of noise.

The act mandated that EPA coordinate all federal programs relating to noise research and noise control, review noise regulations prescribed by other federal agencies, and report periodically on the status and progress of federal noise control activities. EPA is required to publish criteria reflecting the kind and extent of identifiable effects on the public health or welfare resulting from noise; publish a report identifying major sources of noise, giving information techniques for control of noise; and prescribe and amend standards limiting noise generation according to the category of the source.

The federal act contains standards that regulate noise at the manufacturing level, and sets goals for new product noise limits which are intended to result in the manufacture of progressively quieter motor vehicles.

EPA is directed by the act to consider four categories of noise makers; construction equipment, transportation equipment, any motor or engine, and electrical or electronic equipment. The act provides for mandatory labeling of products with their decibel levels, and prohibits sale of items not conforming with standards (including imported manufactured goods).

Violators are subject to fines of up to $25,000 a day and imprisonment of up to one year. And perhaps most importantly, any person may, under the act, start a civil action on his own behalf against any person or governmental agency for violation of the act.



Although not backed by adequate funding, the act offers a strong mandate - and opportunity - for corrective action.

As a result of one set of regulations established under the act, and effective on October 1, 1974, EPA predicts that there will be a change in highway noise levels within the next year. As one of the first steps under the new regulations and as part of an antinoise campaign, EPA ordered over 100,000 heavy trucks to install quieter tires and mufflers.

Environmental groups have criticized the regulations as too weak and tending to legalize rather than outlaw noise pollution. And, according to EPA, the truckers are not satisfied with the regulations either - but they are a start.

STATE NOISE CONTROL

Interest in protecting the public from noisy environments was initiated in 1957 when the General Statutes gave municipalities the authority to regulate noise on streets, sidewalks and public places. Previously, local health departments took complaints under nuisance laws, but enforcement was difficult.

In 1971, the state began research and activities in Connecticut in the field of sound measurement and control. Until recently, the only state regulation of noise levels came through the Motor Vehicles laws. In the first statewide noise abatement efforts, the state agencies responsible for administration of the program were the Departments of Motor Vehicles, Transportation, and Environmental Protection.

DEP was charged with handling complaints from citizens in the state regarding individual noise situations, reviewing noise impact statements, taking noise measurements of stationary sources, and developing an estimated stationary source noise level profile for the state.

DOT had engineers on permanent assignment for noise prediction measurement and evaluation and has undertaken a few experimental projects.

The Department of Motor Vehicles undertook the broadest role - since it had existing enabling legislation. The General Statutes give the DMV authority to stop and examine motor vehicles and issue warnings for defective equipment, and to suspend or revoke licenses and/or registrations for violations of the laws. The General Statutes also set standards for motor vehicle noise limits for 1973 to 1975, 1975 to 1978, and after 1978. The DMV also has teams of inspectors which were formed to assist local authorities in enforcement procedures as well as to independently enforce the regulations.

A broader antinoise program came in 1974 with P.A. 74-328, An Act Concerning Noise Pollution, which provides the groundwork for the control of excessive environmental noise and sound levels emitted by certain major sources.

The act directs DEP to:

- develop controls in environmental noise through regulation and restriction of the use and operation of stationary noise sources;
- develop ambient noise standards for stationary sources which the DEP Commissioner designates as major sources of noise, including the possible adoption of EPA source standards;
- consult with and provide technical assistance to other state and local government agencies that adopt and enforce codes, standards and regulations dealing with noise insulations and abatement;
- develop controls on airport and aircraft noise to the extent not preempted by federal law; regulations may include additional regulatory programs in an effort to maintain and enforce a comprehensive statewide program of noise control.

The act requires DEP to report to the General Assembly by February, 1975 on recommendations for further executive and legislative action in the area of noise control. The recommendations will include the feasibility of state certification of low noise emission products, and of establishing labelling requirements setting forth the noise levels of all products.

In addition to this report, the noise program is responsible for developing statewide standards and regulations, conducting programs of public education on the causes and effects of noise and means for its abatement and control, and encouraging the participation of professional, scientific, conservation and other public interest groups in related public information efforts.

The program will include investigation of complaints, surveys and testing activities, general ambient noise sampling, observations on conditions causing or affecting noise pollution, tests and assessments of the degree of abatement required.

LOCAL NOISE CONTROL

P.A. 74-328 authorizes any municipality to develop a comprehensive program of noise regulation and noise ordinances, which may be more stringent than those in the state program, and which must be approved by DEP.

Municipalities may adopt, amend and enforce noise control ordinances dealing with maximum noise levels in specified zones; designation of a noise control officer and commission to direct noise control programs; implementation procedures for such programs; procedures to assure compliance with state and federal noise regulations; and noise level restrictions concerning construction activities.

The law directs DEP to explore the possibility of developing a model ordinance for local use and provide consultation services to municipalities. To this point, municipalities have proven most effective in the broad noise regulation field, but there are still only a few that have local ordinances which are an effective means of reducing noise levels.

One of the most successful municipal approaches separates the community into three categories: residential, commercial and industrial. Maximum permissible noise levels can be established for the boundaries between any two zones. Certain noise activities can be limited in any zone to specified hours of the day or to specified lengths of time.

In order for these or other steps toward noise abatement to work, a community must be committed to enforcing the standards and have a mechanism to respond to complaints. The local ordinances will not only reduce noise levels for the community, but will also aid DEP in its enforcement responsibilities under the act.

For further information, Connecticut Conservation Association white paper on noise, from CCA. Bridgewater, Connecticut, 06752

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coastal area program director

DEP has hired a director for the state's Coastal Area Management Program. Charles D. McKinney joined DEP on November 1st to begin the first year of work on the program.

McKinney came to Connecticut from a Vermont-New Hampshire interstate regional planning and development agency which he directed for the past five years. During this time, the agency participated in proposing and preparing regional and local plans and regulations that were adopted by the member towns in order to guide the development of the region's economy and natural resources. Prior to this, McKinney served as assistant director of a midwestern regional planning agency, as a director of research for a private planning firm, and as a city planner. His understanding of regional and local problems make him especially valuable in the development of the coastal area management plans.

McKinney has stressed that the Coastal Area Management Program is not a study but an action program. His first tasks as director include assembling a staff of six, meeting with the Coastal Zone Management Board, meeting with state and local people who have been involved in coastal areas such as the coastal RPA directors, reviewing the Long Island Sound Draft Study proposals for application to the program, and revising the work program to reflect a late start. The work, which was scheduled to begin in July, could not begin until November when the director was hired.

McKinney is temporarily located in DEP, Room 118, 566-4202. For details on the Coastal Area Management Program, see October '74 Bulletin.

the crisis isn't over — just dormant

ENERGY COORDINATORS

Energy Coordinators were set up in each of the state's 169 municipalities at the peak of the energy crisis last year, to assure that the Emergency Energy Agency would be in direct contact with the entire state. EEA's predecessor, the Connecticut Energy Agency, now oversees the Energy Coordinators and views their most important function at present as aiding its efforts toward energy conservation.

The Energy Coordinators last year dealt with energy allocation, compliance, and conservation. They are on standby now in case a program of fuel rationing is needed, and the CEA keeps them supplied with the latest information and guidelines coming from the federal government.

The role of the Energy Coordinators is voluntary - they are not backed by a commission, and were not created by any act of legislation. They usually hold full-time jobs which include such things as selectperson, police chief, mayor, town manager, town planner, fire chief, minister, assessor, and citizen.

Meetings are now being held between the CEA and the individual Energy Coordinators to discuss local problems. According to the CEA, progress in educating the public on energy conservation is slow, and varies from town to town - but is still vitally important.

CHRISTMAS LIGHTING

Disseminating federal policy on Christmas lighting is an example of CEA's contact with the coordinators. The agency forwarded federal guidelines to the coordinators so that they may be of help to local citizens.

In a letter explaining the guidelines, CEA Administrator Lynn Alan Brooks, urged "prudent restraint and moderation in the matter of Christmas lighting." Although the lighting is only a small part of energy use, Brooks said that indiscriminate holiday lighting creates the false impression that energy sources are plentiful and tends to discourage the necessary conservation of energy.

Brooks also urged people to take advantage of the increased bus service that has been instituted by many municipalities. He suggests that persons not served by public transportation might combine shopping trips with neighbors and make certain each trip is really necessary.

To find the name of the Energy Coordinator for your town, call the CEA at 566-2800, 20 Grand Street, Hartford 06115.

DEGREE DAY FIGURES

Degree day figures so far for the 1974-75 heating season indicate a continuing need for citizens of the state to conserve energy.

CEA is plotting degree days on a day-to-day basis for 1972, 1973, 1974 and figuring the average degree day for the last 10 years. The records show Connecticut to be appreciably colder than normal, and colder than last year. As of December 1, this year is running 15 percent colder than normal and 31 percent colder than last year.

"Although winter doesn't officially start until December 21, this data supports our agency's emphasis on the need to conserve energy," Brooks said.

Degree days, originally calculated to help heating oil dealers estimate demand, are the difference between 65 degrees Farenheit and the average daily outside temperature. If the outside temperature is 20 degrees, the number of degree days is 45.

Anyone seeking degree day data may call CEA's toll-free number in Connecticut: 1-800-842-9550.

wood....the renewable fuel

There are several characteristics of wood that make it an appropriate home heating fuel and a good substitute for oil or natural gas in the effort for conservation.

Wood is much lower in irritating pollutants than most fuels - it has a low ash content and usually burns cleanly, giving off water and carbon dioxide and leaving only a minimum of ash as waste. The ash that remains can be applied to the soil as a valuable fertilizer for gardens.

Coal, gas, and oil are limited resources that can't be replaced once they are used. They require expensive equipment, manpower and energy to locate, extract and process. In contrast, wood is a renewable resource - new trees can be grown which can, in turn, be cut. And good forestry practices improve wildlife habitat as well as fuel needs, and wood is relatively inexpensive.

The amount of heat produced by a fireplace log depends on the relative percentages of woody material, resin, water and ash. A standard cord of dry hardwood usually weighs approximately two tons and provides as much heat as one tone of coal, 200 gallons of fuel oil or 24,000 cubic feet of natural gas. Pound for pound, therefore, heavy hardwoods have about half the heating value of coal and one-third the heating value of oil.

Cedar, pine, spruce or hemlock ignite quickly and therefore make good kindling. Softwoods like pine, spruce, hemlock or fir burn rapidly and will produce quick, warming fires with hot flames that die quickly. Hardwoods like ash, maple, birch and oak burn less vigorously and produce steady, glowing coals and therefore a long-lasting fire. Woods of fruit or nut trees such as apple, hickory, cherry and beech give a pleasant fragrance when burned.

The following table shows the density and heat value of several species of dry wood. Those with a high density burn longer; those with a lower density ignite and burn more quickly. The ideal fire is achieved by mixing light and heavy wood.

Firewood can be bought by the cord (4 by 4 by 8 ft.) or the face cord (4 by 8 ft.) with the log size depending on the fireplace size. But there are also other ways of acquiring wood.

Trees that are diseased, poorly formed,

or of little-used or weed species occupy valuable growing space, and the planned cutting of healthy trees is an integral part of forest management.

Firewood is also often available at many landfills. Because open burning is regulated in the state, discarded trees furnishing usable wood often consists of as much as 30 percent of the debris in some town and city dumps.

Industrial scrap may be another source of firewood. Sawmills accumulate slabs, trim and edging in their millyards, and power companies might also offer the logs, limbs, and treetops that result from their powerline maintenance.

For further information...

-"Firewood for Your Fireplace"; pamphlet available from Roaring Brook Nature Center, Canton - with excellent table rating burning characteristics of wood - from which much of this article was taken.

-"Enjoy Your Fireplace, Especially During the Energy Crisis"; U.S. Department of Agriculture, Forest Service, Upper Darby, Pennsylvania 19082.

Species	Density	Heat Value
Osage orange	0.78-.83	112
Dogwood	.70-.79	100-107
Hophornbeam	.70-.75	100-101
Hickory	.70-.74	100
Oak	.60-.73	86-99
Black locust	.69-.70	95-98
Blue beech	.65-.71	93-96
Beech	.64-.66	89-91
Hard maple	.58-.65	83-88
Birch	.55-.64	79-86
Mulberry	.59-.63	84-85
Apple	.58-.62	83-84
Ash	.57-.61	81-82
Southern pine	.51-.60	73-81
Elm	.50-.59	71-80
Walnut	.52-.55	74
Soft maple	.47-.54	67-73
Tamarack	.49-.53	70-72
Cherry	.50-.52	70-71
Sycamore	.49-.52	70
Gum	.48-.52	69-70
Douglas-fir	.45-.51	64-69
Sassafras	.44-.46	62-63
Chestnut	42-.44	59-60
Spruce	.41-.44	59
Tulip or yellow-poplar	40-.42	57
Hemlock	40-.42	57
Cottonwood	.38-.41	54-55
Balsam fir	.36-.40	51-54
Redwood	.33-.40	47-54
Aspen	.37-.39	53
Basswood	.37-.39	53
White pine	.35-.37	50

as the squirrels go....

The Department of Environmental Protection's forest nursery program uses many modern mechanical devices to sow, cultivate and harvest seedlings; but one of the most efficient ways to gather seed cones is still to follow the squirrels, according to Marty Cubansi, Manager of the state's 15-acre nursery in Voluntown.

"Fall is the time to harvest the cones. It's also the time when landowners should place their orders for spring plantings," Cubanski said.

"We harvest the cones every year. Three of the five full-time employees at the nursery here in the Pachaug State Forest spend several days each September gathering a portion of the bushels of cones needed to produce some of the million and a half seedlings grown every year.

"Letting squirrels nibble off the cones when they are not quite ripe takes advantage of their expertise in climbing trees and gets the job done safely and efficiently." Unfortunately, it is only possible to use this free labor for about 30 percent of the collection.

Employees gather most of the remaining cones by hand, using ladders, climbing harnesses, pruning poles or specially modified cranberry rakes. Some cones and seeds are purchased from local contractors who gather them under the nurseryman's supervision.

Most of the seedlings raised at the nursery are conifers -- white spruce, white pine, larch, Douglas fir, and hemlock. A small number of hardwoods are also grown -- chestnut, butternut, European black alder and tulip poplar. Although Connecticut has few areas that can support good black walnut growth, the nursery continues to grow that species because it is highly popular, particularly for wildlife plantings.

"Unfortunately, most of this year's walnut crop was wiped out by crows," Cubanski said. "The big birds would wait until the first tender shoots poked through the soil, then would rip up the opened nut and eat it. As a result, we lost a lot of the seedling crop."

Hemlocks will be in short supply this year, too, so Cubanski recommended that landowners substitute white pine or larch instead.

Trees are not the nursery's only crop.

Shrubs that offer food and shelter to wildlife are also grown. These include highbush cranberry, crabapple, autumn olive, dogwoods and honeysuckles. The fruits of most of these plants are gathered in the fall for the seeds, just as the conifer cones are.

"Most of the nursery's production is intended for people who own at least one acre of plantable land. The bundles of 250 two- or three-year-old seedlings are sold with the idea that they will be harvested someday -- in 60 years or so -- for lumber," Cubanski said.

Smaller amounts of seedlings are available for the wildlife conservation plantings. All large orders must be approved by a DEP service forester after consultation with the property owner. Owners should obtain order forms now from any DEP regional office, the State Forester or the nursery, to allow enough time for the consultation. Seedlings are delivered in the spring.

Suburban homeowners can purchase the recently introduced and highly popular "wildlife buffer bunches," which include 30 shrubs and 20 conifers. The seedlings cannot be used for ornamental plantings.

The nursery is self-sufficient so the prices for seedlings depend on the costs for raising them. This year, the conifers sold for $34 per thousand; the hardwoods for $100 per thousand; and the shrubs for $40 per thousand. Hardwoods are available in limited numbers because the seedlings are more difficult to grow and tend to be more susceptible to root rotting and fungi than the softwood seedlings. The seedlings are small, ranging in size from 8" - 16", depending on species.

Information and advice on forestry and wildlife planting practices are available by calling the DEP regional headquarters throughout the State or the Forestry Unit in Hartford: Pleasant Valley, 379-0771; Middlebury, 758-1753; East Hampton, 295-9523; Voluntown, 376-2513; Waterford, 443-0166; and the Forestry Unit in Hartford, 566-5348.

DEP at work

The monthly survey of DEP actions has been suspended during the last two Bulletins to allow for the comprehensive coverage of land use programs. This section will, therefore, be unusually long this month, and summarize major press releases issued over the last two months.

FISHWAY TO BE CONSTRUCTED

Construction of a fishway over Rainbow Dam on the Farmington River began in October and the fishway, originally proposed by The Stanley Works in 1972, should be completed and operating around May. The project will open more than 100 miles of the Farmington River and its tributaries to spawning fish from the sea. The cost of the fishway will be shared by The Stanley Works, the State of Connecticut, and the Fish and Wildlife Service of the Department of the Interior, The Stanley Works will deed the fishway to DEP to operate upon completion.

"This project, which was initiated by the company, clearly demonstrates both the imagination of the company's officers and the good corporate citizenship of the firm," Governor Meskill said, in announcing the project. "I am very gratified that the public and private sectors are able to cooperate in such worthwhile endeavors."

The fish ladder at Stanley's Rainbow Dam is some eight miles up the Farmington from its intersection with the Connecticut River. The ladder will allow fish that swim up the Connecticut from the sea to spawn to move another 19 miles beyond the Rainbow Dam to the Winchell Smith Dam. In addition, some 86 miles of Farmington River tributaries will be made available.

The project is part of a state-federal program to restore Atlantic salmon to the Connecticut River system; other anadromous fish such as shad, herring and sea trout will also use the fishway.

Plans and specifications for this fishway were prepared by Macchi Engineers, Hartford, who will act as consulting engineers for the project.

DESCRIPTION OF FISHWAY

The Department of Interior's recommendation for Stanley's Farmington River Power Company dam at Rainbow in Windsor is a vertical slot fishway. This is a series of vertical slot weirs which have a relatively constant hydraulic characteristic over a wide range of water depths making this design well suited to the river conditions.

The fish ladder is a series of concrete boxes, or weirs, placed one slightly above another. The ladder will be built parallel to the tailrace, which carries water emerging from the generating power station, and up the bank adjacent to the station.

Water flowing down through the weirs will enable fish swimming upstream to "climb" the ladder by moving from one weir to the next until they enter the reservoir above the dam. Fish approach the ladder in the tailrace water and enter the ladder at the base of the generating station wall. Maximum climb for the fish is 61 feet.

Constructed of cast-in-place concrete, the ladder is 720 ft. long, eight ft. six inches deep and seven ft. wide. There are 59 vertical slot weirs uniformly spaced along the length of the concrete sluice. Flow of water through the sluice will approximate 260 gallons per second.

The fishway has been designed to handle an annual population rate of 20,000 shad and 5,000 Atlantic salmon. A fish counting room and a fish holding pool will also be provided for monitoring the fishway, which will be operated by DEP.

BALL POND STOCKED

DEP personnel have reclaimed Ball Pond in New Fairfield to allow restocking with rainbow trout.

The pond was stocked with rainbow trout fingerlings in the fall and will be stocked with rainbow fry next spring. The trout, without competition from other fish, should grow and survive at rates comparable to trout in a hatchery, but at a fraction of the cost of stocking catchable trout.

Reclamation involves removing all fish with a selective fish toxicant and restocking with the desirable species -- in this case trout. The toxicant is a special formulation of rotenone which acts on the fishes' gills and prevents them from obtaining oxygen from the water.

Rotenone is harmless to warmblooded animals and has been used for many years by fisheries biologists to remove undesirable fish from lakes. It breaks down in about a month.

The reclamation was approved by the State Health Department and water from Ball Pond was not used for domestic purposes until cleared by the Health Department.

COMMERCIAL FISHING

A major restructuring of licensing, fees and registration for commercial fishermen, lobstermen and lobster wholesalers will become effective January 1, 1975.

The new law affects only commercial

fishermen, not sports fishermen.

Public Act 74-348, adopted by the 1974 General Assembly, created 13 license and registration categories, including three lobster licenses. The legislation was passed to modernize and consolidate laws that in some cases dated back 50 years, to make fee schedules realistic, and to provide information for the sound management of the resources of Long Island Sound and nearby waters.

The basic licensing procedure will remain the same. Applications for licenses are available from DEP. Procedures are being developed by DEP to ease the transition to the new licensing system in order to insure that commercial fishermen will not be unduly inconvenienced.

The three lobster license categories are: resident commercial, non-resident commercial and non-commercial. The non-commercial license covers those taking lobsters for personal use only. Lobsters taken under this license cannot be sold. It allows taking by no more than 10 lobster pots or by skin diving or scuba diving.

The commercial licenses cover the use of lobster pots or trawls to take lobsters, finfish, and crabs other than blue crabs. Those taking blue crabs must have a special license.

New Yorkers who lobster in Connecticut waters must have a Connecticut license.

In addition, registration is required for pound nets and purse seines. Separate licenses will be issued for the taking of inland and of marine bait species for commercial purposes. DEP will continue to license commercial bait dealers, including those selling marine bait species.

Those fishing commercially for shad and other kinds of finfish will require other types of licenses. Assistants in commercial operations must also be licensed.

Dealers purchasing lobsters for resale from lobstermen licensed in Connecticut must have a license themselves.

Licenses are issued for a calendar year. Anyone operating year round should apply now for a 1975 license, and commercial lobstermen who wish to retain their present registration numbers should obtain their licenses no later March 1, 1975.

New licenses, flags, tags and required report forms will be ready for distribution well before the end of the year.

Applications and details on the new law are available from DEP's Licensing Section, Room 185.

The new commercial fishing licenses:

- Commercial license to take blue crabs (no change in legal methods)	$25.00
- Non-commercial lobster license (to take lobsters for personal use only with not more than 10 lobster pots or by skin diving or scuba diving)	10.00
- Resident commercial lobster license and for finfish and crabs other than blue crabs (lobster pots no limit or by trawls)	50.00
- Non-resident commercial lobster license and for finfish and crabs other than blue crabs (same as above, not available to residents of states which do not issue commercial licenses to Connecticut residents)	75.00
- Assistant's License (to assist commercial fishermen licensed to take lobsters, finfish and crabs other than blue crabs with lobster pots or trawls)	1.00
- Commercial Shad License (to set, tend or assist in setting or tending	

seines, gill nets or scoop nets to take shad, inland or marine)	$10.00
- Commercial License to take finfish other than shad or bait species (to set, tend or assist in setting or tending gill nets, seines, traps, fykes, scaps, scoops, weir, eel pots, etc., inland or marine)	10.00
- Inland Commercial License to take bait species (to set, tend or assist in setting or tending seines, traps, scaps, scoops or weirs)	5.00
- Marine Commercial License to take bait species (to set, tend or assist in setting or tending seines, traps, scaps, scoops or weirs)	5.00
- Commercial Registration for Pound Net (to take finfish)	50.00
- Commercial Purse Seine Registration (to take menhaden)	300.00
- Commercial license to buy lobsters from licensed commercial lobstermen for resale	5.00
- Commercial Bait Dealer's License (Sec. 26-45) (to sell inland or commercial bait species)	5.00

STUDY OF HUNTER USE

A study of hunter use is again being conducted at the Larson Lot Wildlife Management Area in Colchester during the 1974-75 hunting season.

DEP personnel at the management area will monitor hunter activity, hunter preferences and effects on wildlife populations. Hopefully, this information will provide biologists with a better understanding of techniques necessary to effectively manage wildlife populations.

Sportsmen using the Larson Lot area will be required to register at a check station on Shailor Hill Road off Route 149, where hunting licenses will be exchanged for field tags. Hunters will not be allowed to use the management area unless they are wearing the tags, and those wearing the tags will not be allowed outside the area.

Some delays may occur as hunters check in and out. DEP regrets the inconvenience but the knowledge gained from this study will help to assure the well-being of wildlife and will benefit all hunters by helping to insure practices for the perpetuation of hunting in Connecticut.

DEER HUNTING SEASON

The deer management act passed by the General Assembly this year will not become effective until 1975.

The deer hunting season for 1974 will remain the same as in the past few years. Confusion has arisen over the new law because of inaccurate stories in national sporting magazines.

Before the deer hunting season is established in 1975, DEP will be required to have public hearings to draw up regulations. The regulations will establish hunting seasons and methods for hunting with shotgun, muzzleloader and bow and arrow.

Should hunting be permitted on state lands with a shotgun, a lottery might be used to randomly select applicants for licenses. No decision has been made on this matter and DEP is not accepting permit or lottery applications.

This year, only the long bow is permitted as a method for hunting deer on state property. A special deer hunting license is required and the bag limit is one deer. The season runs from November 1 through December 31, but no hunting is allowed on Sundays. On private agricultural property, deer may be taken by non-landowners only during December by long bow or shotgun, with a permit from DEP.

An abstract of the state's hunting, fishing and trapping laws and regulations is available from DEP, Room 110.

DEP ON OIL REFINERY

Even with the best of controls, oil refineries would cause serious environmental degradation in Connecticut. The most serious problems that would be posed by an oil refinery are related to air pollution and the risks associated with supertanker traffic in Long Island Sound.

These conclusions are based on a DEP draft report on the potential environmental effects of a refinery, which was forwarded November 22 to the Governor's Fact Finding Task Force on Refineries.

The report states that the shipment of crude oil to offshore terminals in Long Island Sound would, "over a period of time, result in the spillage of considerable quantities of oil". Navigational hazards would arise from the supertankers' large size and problems with maneuverability, and damage from oil spills would be inevitable, the report states. "The effects of a major accident involving a supertanker could be catastrophic," Commissioner Costle said.

According to the study, a refinery "would be the largest single air pollution source in the state". Hydrocarbons -- one of the formative chemicals of smog -- would pose the most serious air pollution problem. This would occur at a time when the state is already struggling to overcome smog problems caused by automobile pollution. Automobiles are also a prime source of hydrocarbon emissions.

Sulfur oxides and particulate matter would be lesser problems.

The report - a general environmental evaluation - does not attempt to specifically analyze either of the recent proposals for refineries in Southeastern Connecticut. It is intended to be an assessment based on refinery sizes and types common to the United States.

A refinery proposed for a specific site, or of a type different from those considered in the study, would require specific and detailed analysis. Such an analysis would be required in the course of evaluating any formal application for federal and state environmental permits necessary before a refinery or associated facilities could be built. No such permit applications have yet been filed.

The report includes a summary and longer technical papers on supertankers and offshore unloading facilities, potential air and water pollution problems, and refinery siting constraints.

Among the report's findings are:

- Federal standards for maximum hydrocarbon concentrations in the atmosphere would be exceeded "significantly and frequently", even with air pollution controls, in the area of a refinery. The hydrocarbons would be emitted from the refinery and from adjacent storage tanks.
- The size of the existing natural channels, particularly in the Race, between Fishers Island and Long Island, would restrict the size of the supertankers that could be used to transport crude oil to a Connecticut refinery. Even with restrictions on size, the risks of damage to Long Island Sound and its coastline would remain significant.
- Refining processes could require large quantities of water. This would tend to limit refinery locations to sites near major bodies of water, such as the Connecticut or Thames rivers or Long Island Sound. Discharge of treated wastewater "is likely to have a substantial impact on the quality of the body of water" receiving the discharge.
- A large refinery would produce several tons of solid waste every day. This waste would include sulfur removed from crude oil and sludge produced by the treatment of wastewater prior to discharge.

Commissioner Costle noted that this report does not deal with the question of the need for a refinery in Connecticut in terms of state, regional or national energy policies. That set of issues is part of the broader study being undertaken by the Governor's Task Force on Oil Refineries. Reports on these issues will be forthcoming from the Task Force.

Copies of the draft report are available from the DEP's Office of Planning and Research, Room 117.

SOLID WASTE GRANTS

- DEP has approved a grant contract of $19,500 for the Town of Avon as partial reimbursement for a landfill compactor.
- $18,048.36 to the Town of Cheshire as partial reimbursement for a landfill compactor.
- $8,142 to the Town of Windsor as partial payment for a dual axle tractor and two dump trailers. The grant will reimburse the town for 40 per cent of the cost.
- $1,950 to the Town of Orange as partial reimbursement for a brush chipper. The grant will pay 30 per cent of the cost.

Since the grant program started, DEP has given more than $5.8 million to towns for eligible expenses in landfill operations.

CIVIL PENALTIES UPDATE

The public hearings on regulations under the Civil Penalties Program continue. Four hearings on proposed regulations that would allow charges to be assessed against polluters who refuse to obey clean air laws were held in November.

In 1973, the General Assembly recognized that existing laws provided too many possibilities for delay and also provided penalties that were unrealistically large. The Environmental Enforcement Act of 1973, enacted to deal with these problems, would eliminate the economic benefits of failure to comply by taxing away those savings. The same formula which businessmen use when making investment decisions would be used to determine the size of the assessment.

The intent of the act was to make the cost of compliance with the law less expensive than non-compliance. (For a detailed article on the Civil Penalties Program see the June/July 1974 Citizens' Bulletin.)

Copies of the regulations are available from DEP, Room 155.

RECYCLING - EVERYONE WINS

Sometimes-controversial mycelium, residue from the production of antibiotics and organic acids, has proved to be a useful and successful agricultural soil builder in a successful experiment to reuse rather than throw away a product.

After more than a year's experience, farmers in eastern Connecticut have proved that mycelium is an excellent soil builder and fertilizer.

The mycelium in question is the fermentation residue from production of antibiotics and organic acids by Pfizer, Inc., of Groton, and had been applied to farms in a number of towns, including Salem, Sterling, Plainfield and North Stonington to test its worth as a soil builder as well as the efficacy of this method of recycling.

The mycelium has also been used to develop topsoil when mixed with sand. Landsco, Inc., of Norwich, removes the material under contract with Pfizer and manages its distribution and ultimate disposition. Landsco, a landscaping company, has successfully used mycelium topsoil to support trees, shrubs and grass on the Captains Walk Mall in New London, at the new hospital at the Groton Submarine Base, and on many other commercial and residential properties.

Spreading mycelium in layers on fields and harrowing it in has proved a practical way to handle the material, which looks like wet mud when it is first produced. The dried, dark brown mycelium looks somewhat like processed peat moss.

Initial attempts two years ago to recycle the mycelium into useable soil by composting with conventional methods caused problems that have been overcome as experience has been gained in handling the material.

The mycelium has a yeasty organic odor when fresh, but the smell is quickly dissipated when handled appropriately. Care has been taken in the spreading and harrowing method to avoid runoff into surface waters. Testing by DEP and the Connecticut Agricultural Experiment Station has not revealed any water pollution on the farms where mycelium has been used.

The application of organic material as a soil builder or fertilizer does not require a permit under the state's solid waste or water pollution control laws, though mycelium should be applied with the same care as manure.

The Experiment Station has grown crops for two seasons in soil treated with mycelium, verifying yield improvements with the use of the organic residue, which acts as a fertilizer. Pfizer has awarded grants to the University of Rhode Island and Connecticut College to conduct similar research into agricultural and ornamental landscaping applications.

Another use expected for mycelium would be to replace precious topsoil as cover for landfill. The town of Stonington has expressed an interest in this application and was recently given the go-ahead to use the material as topcover.

Landfills will provide areas where mycelium can be used while farms are inaccessible because of weather conditions or the growing season. This is important because Pfizer operates every day of the year, generating about 1,000 tons of mycelium a week.

Conversion of the organic mycelium wastes into a useful and productive soil additive is a heartening success. What had been thought of as only a waste and was formerly dumped into the sea is now serving as a substitute for increasingly expensive nitrogen fertilizers, saving farmers money and also saving the large amounts of energy needed to produce the commercial fertilizer.

WEST ROCK RIDGE DEED

DEP has had to return a deed to the City of New Haven for land in the West Rock Ridge area.

The deed was returned because the Attorney General rendered the opinion that it was legally unacceptable under the terms of Special Act 74-56 because the city's Board of Alderman had attached conditions to the transfer.

Commissioner Costle said he was most disappointed that the transfer could not proceed at the time, "and I hope the General Assembly will amend the legislation to allow conveyance of the property under conditions suitable to all parties.

"The Department certainly encourages the creation and expansion of urban parks. This is especially true where outstanding natural landforms are located as is the case with West Rock Ridge," he said. "The Department appreciates the willingness shown by the City of New Haven to transfer the land so that all Connecticut residents may enjoy it."

The Attorney General's opinion on the matter said that neither the City nor DEP could attach conditions to the transfer of the deed. The only body that could attach conditions in this case would be the legislature, the opinion said, and the legislature did not provide for any conditions in the special act.

The act set October 1 as the last date for transferring the property, which means that nothing more can be done until the next General Assembly convenes.

calendar

Dec. 9 - 7:30 p.m. Hearing on application of the New Haven Board of Education to fill within a wetland on Parcel 3, ecological unit 27, subdivision 1 in New Haven. HALL OF RECORDS, 200 ORANGE STREET, NEW HAVEN.

Dec. 10 - 7:30 p.m. Hearing on application of Robert S. Jones and Kenneth B. Tate to excavate within a wetland on Parcl 18, ecological unit 67, subidivision 1 in Stonington. TOWN HALL, ELM STREET, STONINGTON.

Dec. 11 - 7:30 p.m. Hearing on application of Michael Taylor of Milford to construct a shopping center, park and pond in Monroe. COUNCIL CHAMBERS, MONROE TOWN HALL, MONROE.

Dec. 12 - Deadline for comment on application of town of East Lyme to dredge an area and refill with beachsand. Information from 566-7160.

Dec. 12 - 7:30 p.m. Hearing on application of Stuart L & Jean F. Jones of Guilford to fill, erect a cinder block industrial building, construct a parking lot, and landscape within a wetland on parcels 67 and 68, ecological unit 38, subdivision 1 in Guilford. TOWN HALL MEETING ROOM, PARK STREET, GUILFORD.

Dec. 13 - 11 a.m. Hearing on application of Bryan Corporation of Hartford for permit to discharge 300 gallons per day of treated septic effluent from a three bedroom house to the groundwaters of the Willimantic River in Tolland. ROOM 129, STATE OFFICE BUILDING, HARTFORD.

Dec. 13 - 10 a.m. Hearing on application of Raymond Roman for Yankee Ingenuity of Coventry for permit to discharge 4,050 gallons per day of domestic sewage and kitchen wastes from an eating establishment and cocktail lounge to the groundwaters of the Mill River in Coventry. ROOM 129, STATE OFFICE BUILDING, HARTFORD.

Dec. 17 - 10 a.m. Hearing on application of Herbert L. Brickman of New York City for one new discharge of 15,000 gallons per day of septic tank effluent from a shopping mall to the groundwaters of Trumbull. ROOM 129, STATE OFFICE BUILDING, HARTFORD.

Dec. 17 - 7:30 p.m. Hearing on application of George E. Bruner III and Ellen R. Bruner to fill and move part of a two story frame dwelling with a wetland on parcel 19, ecological unit 8, subdivision 1 in Westport. KINGS HIGHWAY ELEMENTARY SCHOOL, STATE STREET WEST, WESTPORT.

Dec. 18 - 7:30 p.m. Hearing on the Hudson River Basin Plan which discusses the water quality management strategy for protecting basin streams. Copies available for inspection in Room 126, State Office Building, Hartford. CONFERENCE ROOM 9, TOWN HALL, RIDGEFIELD.

Dec. 18 - 7:00 p.m. Hearing on application of Charles D. McCullough of Southport to construct a road and residential subdivision within a wetland in Fairfield. RODGER LUDLOW SCHOOL, UNQUOWA ROAD, FAIRFIELD.

Dec. 19 - 10 a.m. Hearing on petition of Velsicol Chemical Corporation to amend Sec. 19-300b-2 (c) (3) of DEP pesticide regulations. Information from 566-5148. HEALTH DEPARTMENT AUDITORIUM, 79 ELM STREET, HARTFORD.

Dec. 25 - Deadline for comment on some 25 orders on NPDES permits to discharge into waters of the state. Information from 566-3245.

Jan. 3 - 10 a.m. Hearing on intent of DEP to amend certain sections of the regulations for indirect sources of air pollution in order to clarify ambiguities. According to the proposed amendments, DEP will impose on an indirect source operating permit only those conditions that were explicitly stated at the time the construction permit was granted - rather than further regulate when an operating permit is issued. The amendments will assure investors that once a construction permit has been granted, the source will be able to operate. Copies available from DEP Room 188. ROOM 221, STATE OFFICE BUILDING, HARTFORD.

Jan. 7 - 10 a.m. Hearing as Jan. 3. COMMON COUNCIL CHAMBERS, CITY HALL, 45 LYON TERRACE, BRIDGEPORT.

Jan. 7 - 7:30 p.m. Hearing on New England River Basins Commission Long Island Sound Regional Study's draft plan, which summarizes the plan and a draft environmental impact statement on the plan. The summary available from NERBC, 270 Orange Street, New Haven 06511. The draft main report and impact statement may be seen at NERBC in New Haven, the RPA's, and libraries in New London, Old Saybrook, Branford, New Haven, Bridgeport, Norwalk and Stamford. AUDITORIUM, NEW LONDON HIGH SCHOOL, NEW LONDON.

Jan. 8 - 7:30 pm. Hearing as Jan. 7, CONTE SCHOOL, NEW HAVEN.

Jan. 9 - 7:30 p.m. Hearing as Jan. 7, AUDITORIUM, NATHAN HALE MIDDLE SCHOOL, NORWALK.

Jan. 10 - 10 a.m. Hearing on application of First Hartford Realty Corporation of Manchester for one new discharge of 1,500 gallons per day of treated septic effluent from a warehouse to the groundwaters in Windsor. ROOM 129, STATE OFFICE BUILDING, HARTFORD.

Jan. 10 - 11 a.m. Hearing on application of Cardner L. Chapman of Ellington for five new discharges totaling 3,300 gallons per day of septic tank effluent from an apartment complex to the groundwaters of the Willimantic River in Tolland. ROOM 129, STATE OFFICE BUILDING, HARTFORD.

Jan. 16 - 8 p.m. Public meeting on cluster zoning, co-sponsored by the Granby Conservation Commission and the Farmington River Watershed Association. Slide presentation on cluster zoning, and experts discussing the concept. For information 653-6188. GRANBY TOWN HALL, GRANBY.

Environmental Centers, Inc. has added a new dimension to the Children's Museum of Hartford - an aquarium featuring unusual relationships among aquatic creatures from all over the world in reproductions of their natural surroundings. Visitors can hold various species of aquatic life and listen through headphones to the sounds of the marine animals. The museum is open seven days a week, free on Thursdays, free parking. TROUT BROOK DRIVE, WEST HARTFORD.

IN CASE YOU'RE WONDERING.... Because the November issue is the second part of the land use special, and unusually lengthy, it has taken an unexpected amount of time to prepare. It will therefore be mailed later than this December issue - you will be receiving it shortly. One of the pleasures of a newsletter produced in-house is its informality. Thanks for bearing with us.

THANKS TO JANICE GOLDFRANK FOR HER ART WORK IN THIS ISSUE; ALSO TO MARSTON GIDDINGS FOR DONATING AN INVALUABLE BOOK OF CLIP ART

DEPARTMENT OF ENVIRONMENTAL PROTECTION STATE OFFICE BUILDING HARTFORD, CT. 06115

COMMISSIONER douglas costle
EDITOR elizabeth jester
ILLUSTRATOR deborah dumin
ASSISTANT EDITOR marsha venuti

telephone 566-2110

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